



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/561,358      | 12/19/2005  | Masaru Shinohara     | 59383US007          | 5956             |

32692 7590 10/05/2007  
3M INNOVATIVE PROPERTIES COMPANY  
PO BOX 33427  
ST. PAUL, MN 55133-3427

|          |
|----------|
| EXAMINER |
|----------|

FEELY, MICHAEL J

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1712

|                   |               |
|-------------------|---------------|
| NOTIFICATION DATE | DELIVERY MODE |
|-------------------|---------------|

10/05/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com  
LegalDocketing@mmm.com

## Office Action Summary

Application No.

10/561,358

Applicant(s)

SHINOHARA ET AL.

Examiner

Michael J. Feely

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20060316</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Pending Claims*

Claims 1-4 are pending.

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Knapp (US Pat. No. 3,284,423).

Regarding claims 1 and 3, Knapp discloses: (1) a heat resistant masking tape (column 4, lines 32-61), comprising: (1) a heat resistant backing film layer (column 4, lines 32-46); and (2) a pressure-sensitive adhesive layer disposed on the heat resistant backing film layer (column 4, lines 52-61), wherein the pressure-sensitive adhesive layer comprises a polymer resulting from polymerizing and cross-linking a monomer mixture comprising an alkyl (meth)acrylate with an alkyl group having 4 to 15 carbon atoms (column 4, lines 52-61), glycidyl (meth)acrylate (column 4, lines 52-61), and (meth)acrylic acid (column 4, lines 52-61), the glycidyl

Art Unit: 1712

(meth)acrylate being present in an amount of 2 to 13% by weight of the total weight of monomers (column 4, lines 52-61) and the (meth)acrylic acid being present in an amount of 1 to 7% by weight of the total weight of monomers (column 4, lines 52-61); and (3) wherein said heat resistant backing film layer is a layer of polyethylene terephthalate, polyethylene naphthalate, polyphenylene sulfide or polyimide (column 4, lines 32-46).

4. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Liu et al. (US Pat. No. 4,762,747).

Regarding claims 1-4, Liu et al. disclose: (1) a heat resistant masking tape (column 6, lines 40-58), comprising: (1) a heat resistant backing film layer (column 6, lines 50-58); and (2) a pressure-sensitive adhesive layer disposed on the heat resistant backing film layer (column 6, lines 40-49), wherein the pressure-sensitive adhesive layer comprises a polymer resulting from polymerizing and cross-linking a monomer mixture comprising an alkyl (meth)acrylate with an alkyl group having 4 to 15 carbon atoms (column 6, lines 40-49), glycidyl (meth)acrylate (column 6, lines 40-49), and (meth)acrylic acid (column 6, lines 40-49), the glycidyl (meth)acrylate being present in an amount of 2 to 13% by weight of the total weight of monomers (column 6, lines 40-49) and the (meth)acrylic acid being present in an amount of 1 to 7% by weight of the total weight of monomers (column 6, lines 40-49); (2) wherein said pressure-sensitive adhesive layer has a thickness of 0.5 to 100  $\mu\text{m}$  (column 6, lines 50-58); (3) wherein said heat resistant backing film layer is a layer of polyethylene terephthalate, polyethylene naphthalate, polyphenylene sulfide or polyimide (column 6, lines 50-58); and (4) wherein said heat resistant backing layer has a thickness of 1 to 250  $\mu\text{m}$  (column 6, lines 50-58).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. (WO 03/064552 A1).

Regarding claims 1-4, Takeda et al. disclose: *(1)* a heat resistant masking tape (Abstract; Example 1; claims 6-8), comprising: (1) a heat resistant backing film layer (Abstract; claims 6-8); and (2) a pressure-sensitive adhesive layer disposed on the heat resistant backing film layer (Abstract; Example 1), wherein the pressure-sensitive adhesive layer comprises a polymer resulting from polymerizing and cross-linking a monomer mixture comprising an alkyl (meth)acrylate with an alkyl group having 4 to 15 carbon atoms (Abstract; Example 1), glycidyl (meth)acrylate (Abstract; Example 1), and *acrylic acid* (Abstract; Example 1), the glycidyl (meth)acrylate being present in an amount of 2 to 13% by weight of the total weight of monomers (Example 1) and the *acrylic acid* being present in an amount of 1 to 7% by weight of the total weight of monomers (Example 1); *(2)* wherein said pressure-sensitive adhesive layer has a thickness of 0.5 to 100  $\mu\text{m}$  (claims 6-8); *(3)* wherein said heat resistant backing film layer is a layer of polyethylene terephthalate, polyethylene naphthalate, polyphenylene sulfide or polyimide (claims 6-8); and *(4)* wherein said heat resistant backing layer has a thickness of 1 to 250  $\mu\text{m}$  (claims 6-8).

Art Unit: 1712

The teachings of Takeda et al. are deficient because: *acrylic acid* is used as the (meth)acrylate monomer having a carboxylic group, in Example 1. However, Takeda et al. also teach that acrylic acid and methacrylic acid are inter-changeably used as this component (*see page 7, lines 7-14*). In other words, they are equivalent monomers for this system – *see MPEP 2144.06*.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute acrylic acid with methacrylic acid in the composition of Takeda et al. because Takeda et al. disclose that these are equivalent (*and inter-changeable*) “(meth)acrylate monomers having carboxylic group” for this system.

7. Claims 1, 2, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka et al. (US 2003/0124346 A1).

Regarding claims 1, 2, and 4, Yamanaka et al. disclose: *(1)* a heat resistant masking tape (Abstract; paragraph 0001), comprising: (1) a heat resistant backing film layer (paragraph 0072); and (2) a pressure-sensitive adhesive layer disposed on the heat resistant backing film layer (paragraphs 0008-0015), wherein the pressure-sensitive adhesive layer comprises a polymer resulting from polymerizing and cross-linking a monomer mixture comprising an alkyl (meth)acrylate with an alkyl group having 4 to 15 carbon atoms (paragraphs 0020-0021), *an optional copolymerizable monomer* (paragraph 0023), and (meth)acrylic acid (paragraphs 0022), the *optional copolymerizable monomer* being present in an amount of 2 to 13% by weight of the total weight of monomers (paragraph 0023) and the (meth)acrylic acid being present in an amount of 1 to 7% by weight of the total weight of monomers (paragraph 0022); *(2)* wherein said

Art Unit: 1712

pressure-sensitive adhesive layer has a thickness of 0.5 to 100  $\mu\text{m}$  (paragraph 0072); and (4) wherein said heat resistant backing layer has a thickness of 1 to 250  $\mu\text{m}$  (paragraph 0072).

Yamanaka et al. disclose the use of an *optional copolymerizable monomer*, wherein the list of candidates includes glycidyl (meth)acrylate (*see paragraph 0023*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include glycidyl (meth)acrylate in the composition of Yamanaka et al. because they disclose the use of an optional copolymerizable monomer. The list of candidate monomers includes glycidyl (meth)acrylate.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka et al. (US 2003/0124346 A1) in view of Groves (US 5,229,206).

Regarding claim 3, Yamanaka et al. disclose the use of polyester films (*see paragraph 0072*); however, they fail to explicitly disclose: (3) wherein said heat resistant backing film layer is a layer of *polyethylene terephthalate*, polyethylene naphthalate, polyphenylene sulfide or polyimide.

Groves also discloses acrylic PSA masking tapes (*see Abstract; column 7, lines 5-24*). Furthermore, they demonstrate that *polyethylene terephthalate* films are representative polyester films for this type of tape.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a polyethylene terephthalate film in the masking tape of Yamanaka et al. because the teachings of Groves demonstrate that *polyethylene terephthalate* films are representative polyester films for this type of tape.

***International Search Report***

9. The international search report cites four X-references. All of these X-references have been considered, and two of them have been applied as prior art (*US Pat. No. 4,762,747 & WO 03/064552*). The remaining references (*US Pat. No. 3,729,338 & US 2001/055679 A1*) fail to disclose the use of methacrylic acid.

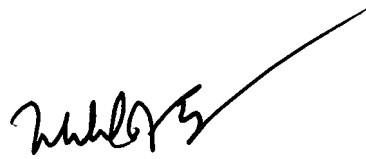


***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael J. Feely  
Primary Examiner  
Art Unit 1712

September 30, 2007

**MICHAEL FEELY  
PRIMARY EXAMINER**